



## CHEMICAL INDUSTRIES INC.

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### TECHNICAL DATA SHEET

**PRODUCT NAME:**

SODIUM HYPOCHLORITE 12%

PRODUCT CODE: 12-65132

#### DRINKING WATER

Break Point Chlorination

The quantity of sodium hypochlorite required to disinfect a water supply, is greatly dependent upon its chlorine demand. For heavily polluted waters, the method of break point chlorination can help determine the level of sodium hypochlorite required to overcome the organic contaminants present in the water. Sodium hypochlorite is added continuously and its rate of addition is plotted against the measured concentration of residual chlorine. Initially, the chlorine is reacting with the organic pollution in the water, and the residual chlorine does not build up as fast as would be expected from the rate of addition. A break then occurs in the graph at the point when no further reaction with the organic contaminants takes place, and the rate of increase in available chlorine parallels the rate of addition of chlorine. This point is known as the break point. At this point, the level of residual  $\text{AvCl}_2$  is raised to 1-2 parts per million. After the required contact time, the water may be treated with antichlor (sulfur dioxide) to reduce the available chlorine level to the specified 0.2 to 0.6 parts per million.

Small volumes of water, with minimal suspended matter, and normal in color:

When using 5.25%  $\text{AvCl}_2$  (w/v) sodium hypochlorite, such as Sodium Hypochlorite 12%, add a minimum of 1-2 drops per litre of water (4-5 drops per gallon), or  $\frac{1}{4}$  cup (60 ml) per 1000 gallons (4546 L) of water.

To render water safe, it is advisable to add a sufficient amount of sodium hypochlorite to kill the bacteria and then add a little extra. The little extra should be such as to produce  $\frac{1}{2}$  parts per million free available chlorine.

TESTING THE WATER – Does It Have an Unpleasant Taste?

Departments of Health may supply testing kits to determine available chlorine content in a water supply. If not, tasting the water can help ascertain the correct level of sodium hypochlorite required.

A slightly detectable taste in the water generally corresponds to 0.5ppm residual  $\text{AvCl}_2$ , the correct level to ensure disinfection. Water that is unpleasant to drink, suggest a much higher level of residual  $\text{AvCl}_2$  (50ppm).

**REMEMBER – IF IT HAS A SLIGHT TASTE OF BLEACH, IT IS SAFE TO DRINK.**

Chlorinating water that contains trace amounts of amines or phenols may also product unpleasant tastes. These tastes are easily removed by superchlorination or breakpoint chlorination procedures.

CONTAMINATION DRINKING WATER

In a time of flood, broken water mains, and other disasters which affect the quality of drinking water, sodium hypochlorite can be used to disinfect the water prior to drinking. This should be done under the instruction of health authorities. Water contaminated by chemical spills or a seepage should not be consumed without clearance from local health authorities.

**IN ALL CASES WHERE ANY DOUBT WHATSOEVER EXISTS REGARDING THE PURITY OF A WATER SUPPLY, IT IS RECOMMENDED THAT A STERILIZING AGENT, SUCH AS SODIUM HYPOCHLORITE, BE ADDED BEFORE USE.**

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**DISINFECTING NEW WATERMAINS**

*For disinfecting new watermains use a minimum of 50 ppm of available chlorine.*

New watermains should be filled with water that provides a minimum of 50 ppm of AVci2. The water should have a residual of 10 ppm of AvCl2 after 24 hours, or as instructed by an appropriate authority.

Use the following steps to determine the amount of Sodium Hypochlorite required for disinfection of the watermain.

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1. Use the table below to determine the volume of water required to wash the watermain.
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Size of Watermain	Gallons of Water per Foot	Length of Watermain	Total Gallons of Water (Imp. Gals)
6"	1.2 x		=
8"	2.2 x		=
10"	3.4 x		=
12"	4.9 x		=
18"	11.0 x		=
24"	19.6 x		=

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